

## IN THE CLAIMS

1-35. (canceled)

36. (previously amended) The method of claim 66 wherein the step of administering is via the oral route.

37. (currently amended) The method of claim 36 wherein the bacterium is top-dressed on a the feed of the ruminant.

38. (previously amended) The method of claim 66 wherein the step of administering comprises injecting the bacterium subcutaneously.

39. (previously amended) The method of claim 66 wherein the step of administering comprises injecting the bacterium intradermally.

40. (previously amended) The method of claim 66 wherein the step of administering comprises injecting the bacterium intramuscularly.

41. (previously amended) The method of claim 66 wherein the step of administering is via the nose.

42-65. (canceled)

66. (currently amended) A method of inducing immunity to pneumonic pasteurellosis in ruminants, comprising the step of:

administering to a ruminant a live *P. haemolytica* bacterium which contains no non-*P. haemolytica* DNA and which, when in a suitable physiological environment, (a) expresses no biologically active leukotoxin[[,]] and (b) expresses a form of leukotoxin molecule which is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin, ~~and~~ ~~(c) contains no non-*P. haemolytica* DNA,~~ whereby immunity is induced.

67-80. (canceled)

81. (currently amended) A method of inducing immunity to pneumonic pasteurellosis in ruminants, comprising the step of:

administering to a ruminant a vaccine formulation comprising at least two sources of a form of a leukotoxin molecule, wherein the form of the leukotoxin molecule is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin, wherein the first source is a killed *P. haemolytica* bacterium, wherein a live form of the killed bacterium (a) expresses no biologically active leukotoxin, (b) expresses the [[a]] form of the leukotoxin molecule ~~which is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin,~~ and (c) contains no non-*P. haemolytica* DNA, and wherein the second source comprises the form of the leukotoxin molecule, whereby immunity is induced.

82. (previously added) The method of claim 81 wherein the step of administering is via the oral route.

83. (currently amended) The method of claim 82 wherein the vaccine formulation ~~killed bacterium~~ is top-dressed on a ~~the~~ feed of the ruminant.

84. (currently amended) The method of claim 81 wherein the step of administering comprises injecting the vaccine formulation ~~killed bacterium~~ subcutaneously.

85. (currently amended) The method of claim 81 wherein the step of administering comprises injecting the vaccine formulation ~~killed bacterium~~ intradermally.

86. (currently amended) The method of claim 81 wherein the step of administering comprises injecting the vaccine formulation ~~killed bacterium~~ intramuscularly.

87. (previously added) The method of claim 81 wherein the step of administering is via the nose.

88. (currently amended) A feed for ruminants which comprises a live *P. haemolytica* bacterium which contains no non-*P. haemolytica* DNA and which, when in a suitable physiological environment, ~~wherein a live form of the lyophilized bacterium~~ (a) expresses no biologically active leukotoxin[[,]] and (b) expresses a form of leukotoxin molecule which is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin, ~~and (e) contains no non-*P. haemolytica* DNA,~~ whereby immunity is induced.

89-90. (canceled)

91. (currently amended) A feed for ruminants which comprises at least two sources of a form of a leukotoxin molecule, wherein the form of the leukotoxin molecule is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin, wherein a first source is a killed *P. haemolytica* bacterium, wherein a live form of the killed bacterium (a) expresses no biologically active leukotoxin, (b) expresses the [[a]] form of the leukotoxin molecule ~~which is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin,~~ and (c) contains no non-*P. haemolytica* DNA, and wherein the second source comprises the form of the leukotoxin molecule, whereby immunity is induced.

92. (currently amended) A vaccine for reducing morbidity in ruminants, comprising a live *P. haemolytica* bacterium which contains no non-*P. haemolytica* DNA and which, when in a suitable physiological environment, ~~wherein a live form of the lyophilized bacterium~~ (a)

expresses no biologically active leukotoxin[[,]] and (b) expresses a form of leukotoxin molecule which is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin, ~~and~~ ~~(c) contains no non-*P. haemolytica* DNA,~~ whereby immunity is induced.

93-94. (canceled)

95. (currently amended) A vaccine for reducing morbidity in ruminants, comprising at least two sources of a form of a leukotoxin molecule, wherein the form of the leukotoxin molecule is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin, wherein the first source is a killed *P. haemolytica* bacterium, wherein a live form of the killed bacterium (a) expresses no biologically active leukotoxin, (b) expresses the [[a]] form of the leukotoxin molecule ~~which is a deletion mutant of about 66 kDa which lacks amino acids 34 to 378 and which induces antibodies which specifically bind to and neutralize biologically active leukotoxin,~~ and (c) contains no non-*P. haemolytica* DNA, and wherein the second source comprises the form of the leukotoxin molecule, whereby immunity is induced.

96. (new) The method of claim 66 wherein the live bacterium is lyophilized.

97. (new) The method of claim 66 wherein the live bacterium is reconstituted from a lyophilized preparation.

98. (new) The feed of claim 88 wherein the live bacterium is lyophilized.

99. (new) The feed of claim 88 wherein the live bacterium is reconstituted from a lyophilized preparation.

100. (new) The vaccine of claim 92 wherein the live bacterium is lyophilized.

101. (new) The vaccine of claim 92 wherein the live bacterium is reconstituted from a lyophilized preparation.

102. (new) The method of claim 81 wherein the second source is selected from the group consisting of purified protein, a bacterial lysate, a bacterial extract, and a culture supernatant.

103. (new) The feed of claim 91 wherein the second source is selected from the group consisting of purified protein, a bacterial lysate, a bacterial extract, and a culture supernatant.

104. (new) The vaccine of claim 95 wherein the second source is selected from the group consisting of purified protein, a bacterial lysate, a bacterial extract, and a culture supernatant.